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GEOGRAPHIC SCHOOL BULLETINS

Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(The National Geographic Society is a scientific and educational Society, wholly altruistic, incorporated as a non-commercial institution for the increase of geographic knowledge and its popular diffusion. General Headquarters, Washington 6, D. C.)

January 21, 1946. Vol. XXIV. No. 15.

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THE RICE OF TEXAS IS ONE-FOURTH THE NATION'S YIELD; HERE A LONE STAR MISS HOLDS HIGH A BUNDLE OF THE GULF COAST CROP (Bulletin No. 2)

GEOGRAPHIC SCHOOL BULLETIN

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic School Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Originally entered as second-class matter January 27, 1922; re-entered as of April 27, 1943, Post Office, Washington, D. C., under Act of March 3, 1879. Copyright, 1946, by National Geographic Society, Washington 6, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.

Soviets Plan to Halt Shrinking of Caspian Sea

"NATURE can't do this to us," Russian scientists indicate, in reports telling of plans now under way to raise the level of the Caspian Sea. Since 1932, it has been found, the Caspian has lost so much water through evaporation and reduced river inflow that navigators and fishing industries are facing serious problems.

Suggested remedies include the blocking off of large arms of the sea by dams; rechanneling rivers to provide more water; and completion of the long-planned Manychski Kanal (Manych Canal), to extend north of the Caucasus Mountains to the Sea of Azov (Azovskoe More), providing a water link with the Mediterranean and the oceans.

Actually a Lake—the Largest in the World

The Caspian has long been a kind of Alice-in-Wonderland lake, growing smaller or larger under changing conditions. Over the centuries, however, the level has gradually declined. In prehistoric times the sea had an elevation of 150 feet above the level of the oceans, and covered, consequently, a much greater territory. Today it is 85 feet below sea level. Between the 14th and 20th centuries, the drop amounted to roughly 37 feet.

The Caspian is actually a lake rather than a sea. Lying in the deepest section of the great depression south and southwest of the Urals, it is more than 700 miles long—the largest of all inland waters. Covering nearly 170,000 square miles, its area greatly exceeds that of the combined surfaces of the Great Lakes. Once, some authorities say, it was part of a vast Asiatic sea linked with the Arctic Ocean, a belief supported by the presence of seals in its waters.

Lacking an outlet, the Caspian is salty, but in general it is considerably less salty than the Black Sea or the oceans. In the north, where the Volga furnishes by far the greatest inflow of fresh water, the salt content is so low that in places people can drink the sea water. On the other hand, salinity in the south rises to high proportions, with evaporation leaving large salt deposits at many spots along the shore.

The northern portion of the Caspian is shallow—little more than 100 feet at its greatest depth. In the south soundings reach 3,600 feet. Northern navigation is halted in winter when the sea freezes over, but all Caspian shipping often experiences difficult and dangerous sailing because of bad storms. Silt deposits from the rivers have formed new shore lines, banks, and shallows, which, together with the receding of the water, have had the effect of pushing certain fishing settlements back from the coast.

Russia and Iran Share the Sea in Unequal Portions

The Caspian is extremely rich in marine life, both of salt- and fresh-water varieties. The catch includes salmon, herring, carp, perch, pike, lobsters, sponges, and sturgeon. The latter fish is an important source of Russia's noted delicacy, caviar.

Two nations, the Soviet Union and Iran, share unequally in the Caspian seacoast. The Russians, along the west, north, and east, hold roughly 2,000 miles of shore line; Iran, in the south and southwest, controls some 430 miles (illustration, next page).

During the war, German forces came close to the Caspian Sea. They were

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Acme

THE RAMPAGES OF THE MAD MISSOURI WILL BE QUELLED WHEN ENGINEERS COMPLETE THE 105 DAMS PLANNED FOR ITS CONTROL

Work progressed in 1945 on the program of the Bureau of Reclamation and the U. S Army Engineers; their goal—to tame the outlaw Missouri River, make it navigable, use it for irrigation and power generation, stop its floods, and slow its continual erosion. Here, in the '44 flood, soldiers help farmers pile baled hay atop a crumbling levee to hold back the angry waters (Bulletin No. 5).

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General Headquarters, Washington 6, D. C.

Once-Sovereign Texas Joined the Union 100 Years Ago

UNCLE Sam's giant son has passed the century mark.

On December 29, 1845 (according to a U. S. Supreme Court decision), Texas entered the family of commonwealths that make up the United States of America. It was the 28th state to join the Union, and the fourth wholly or partly west of the Mississippi River. Texas became the ranking state in area and at that time represented almost one-fifth of the territory covered by statehood. It has kept its rating as the largest of the commonwealths throughout the century, and today covers more than one-eleventh of the area of the 48 states.

Population Jumped From 125,000 to 6,500,000

When Texas joined the Union it smashed more records than the one for size. It is the only full-fledged nation that has thrown in its lot with Uncle Sam. For nearly ten years it existed as an independent republic, a world state with all the usual trappings of sovereignty: a constitution, a flag, a president and congress, an army, a navy, its own money, and an exchange of diplomatic representatives with other sovereign states. The dwelling house which served as the French Legation (illustration, next page) still stands in Austin, capital alike of the republic and the state.

When Texas began statehood its population was only 125,000—less than all but four of its little-sister commonwealths. Today it has more than six and one-half million inhabitants and ranks fifth among the states. The wealth of the state a hundred years ago was probably less than 100 million dollars; now the figure is near the 12-billion-dollar mark. A growing population; tilled soil; orchards; vast herds of cattle, sheep, goats, and other livestock; developed forests; dams and power plants; mines; and oil and sulphur wells—even the extraction of valuable minerals from sea water—have made the difference.

In numerous ways Texas has cashed in on its climate. Its Gulf coast is one of the few places in the United States where rice can be grown commercially (illustration, cover). Mile-long freight trains loaded with winter vegetables and citrus fruits roll to the colder parts of the country. Winter visitors flock to its frost-free southern sections. Transcontinental railroads, highways, and airways pass through the state on the nation's routes least affected by winter blizzards.

Many Texas Heroes Perished in the Alamo

Texas had piled up a long and eventful history before it decided to give up its independence. Over its soil, between 1519 and 1845, floated the flags of four nations: Spain, France, Mexico, and the Republic of Texas. Two other banners were to be added: those of the United States and the Confederacy. Spanish missionaries from Mexico began building enduring structures in Texas in the early 1700's when the restless American colonists along the Atlantic coast had not yet pushed beyond their first barrier, the Allegheny Mountains. A number of these massive mission buildings, together with the famous Alamo, still stand in and near San Antonio.

In the Alamo, during the 1835-36 Texas revolution against Mexico, Davy Crockett, James Bowie, William B. Travis, and approximately 180 others were killed to the last man.

Unlike Federal Territories, which must grow up under guardianship beneath the parental rooftree before they are made actual members of the family, the Republic of Texas was in the unique position of an adult nation which could discuss the terms of a family merger. The conferences led to the drafting of a treaty of annexation between the two nations; but because of political tensions during a presidential campaign the treaty was not formally ratified. Instead, the treaty was introduced in the form of a resolution in the Congress of the United States and was adopted. Texas got the benefit of the treaty provisions.

Texas Could Have Been Five States

The state kept for its own the republic's vast and valuable public domain. Texas is thus the only state in the Union, with the exception of a few of the original thirteen, which retained possession and management of its public lands. The state, like the nation, has its General Land Office and has distributed millions of acres to settlers.

Another stipulation in the bargain struck by Texas provided that the area could be divided into five separate states if the citizens so desired. This provision was made at a time when Texas was an immense unpeopled wilderness. Its operation as a unit then seemed hopeless to a government dependent on ox-team and horseback communications. As the years have passed

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stopped short of their goal by the great battle of Stalingrad on the Volga, and just outside Grozny in the Caucasus isthmus between the Black and Caspian seas. Loss of the Caspian would have been a major defeat for the Allies, since it provided one of the few channels for supplying the Soviet Union with war materials during the period when the Germans were overrunning most of Europe. The supply line was kept open, by way of the Persian Gulf, a rail line and highway through Iran, and the Caspian, in spite of German bombing raids against shipping.

In peace or war, the Soviet oil center, Baku, has been the leading port of the Caspian. Other Russian ports of consequence are Astrakhan (which gave its name to a fur and the rough cloth which imitates it), Makhachkala, and Derbent. Gurev serves the Kazakh S.S.R., and Iran uses Pahlevi (the port for Resht) and Bandar Shah. Cargoes of petroleum products rank first in the Caspian, followed by grain, fish, timber, salt, iron, and coal.

In addition to commercial shipping, the Soviets operate a war fleet in the Caspian, with a new naval base at Krasnovodsk, in the Turkmen S.S.R. on the eastern coast. Rivers and canals link the Caspian with the far-off Baltic and White seas; rails reach its shores from the north, west, south, and southeast.

Note: The Caspian Sea is shown on the National Geographic Society's Map of the Union of Soviet Socialist Republics. A price list of maps may be obtained from the Society's headquarters, Washington 6, D. C.

For further information about the Caspian region, see "Mother Volga Defends Her Own," in the *National Geographic Magazine* for December, 1942; and "Roaming Russia's Caucasus," July, 1942*. (*Issues marked with an asterisk are included in a special list of Magazines available to teachers in packets of ten for $1.00.*)

Bulletin No. 1, January 21, 1946.

A. N. Mirzaoff

THESE IRANIAN WOMEN USE THE GIANT CASPIAN SEA AS A WASH TUB

Most coastal scenes of this "inland ocean" are as bleak as this. Caspian shores are usually deserted and salt-encrusted. The water line is gradually receding, leaving fishing villages and ports inland. The sea carries a considerable tonnage of commercial and naval shipping—mostly Russian. The Soviet Union and Iran (Persia) share the coastline.

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General Headquarters, Washington 6, D. C.

Problem Areas of Europe: 3. The Ruhr

(This is the third of a series of 9 articles about European trouble spots.)

THE Ruhr region of Germany is a problem not because of mixed nationalities nor because of border complications. The population is solidly German; and although this heavy-industry area lies close to the Netherlands frontier, nowhere does it touch an international boundary. But the Nazis no doubt wished they could have moved the Ruhr region farther into the interior—at first to escape almost incessant RAF bombing raids, later to put off capture by rampaging American armies.

The Ruhr is one of the areas demanding postwar international attention because, three times in the past 75 years, it has been the arsenal and forge and laboratory that sustained German aggression. From the bitter experience of the past century, Europe might write an alliterative equation: Reich plus Ruhr equals ruin.

Many Mines Survived the Heavy Bombing

Germany's latest attempt at world domination backfired and brought ruin to the Ruhr. Virtually everything above the surface was blasted, fired, seared, and twisted in one of the most thoroughgoing bombing campaigns of the pre-atomic period of World War II. Essen, home of the notorious Krupps, and Düsseldorf and Cologne were worst hit of the Ruhr's largest cities.

But coal is the basis of Ruhr wealth, and coal mines are hard to bomb. Shortly after V-E Day a survey showed three-fourths of the area's numerous mines in working order—most of them damaged slightly. Technical executives, left in charge of bombed factories when the industrialist-owners fled, told American and British officers that with an Allied O.K. most of the mills and factories could be repaired in short order. One plant had actually prepared an exhibit, with labels in English, showing the peacetime articles the company could turn out.

Many plans have been proposed for the Ruhr's peacetime role. Some groups insist on its separation from the rest of Germany and its establishment under international control. Others favor dismantling the factories and shipping them as reparations to nations the Germans devastated, leaving the Ruhr's surface to farms as it was 100 years ago. A third plan would allow the area to rebuild and resume production under strict Allied supervision.

Mines Could Supply One Hundred Million Tons of Coal

The Ruhr now lies entirely within the British Zone of Occupation. An Allied Coal Headquarters controls production of the coal so badly needed by liberated nations. From offices in a gaudy Krupp palace in north Essen this organization has been trying to get the coal mines into operation again. The yearly output could reach more than 100,000,000 tons of coal if Ruhr mines were worked as in prewar days.

Internationalization of the Ruhr would indicate recognition of the fact that the lower Rhineland, northern France, Belgium, Luxembourg, southern Netherlands, and the Ruhr form a closely knit economic and industrial unit. Ruhr coal feeds industries in all these countries. Lorraine, near by in France, provides a source of iron ore for Ruhr blast furnaces. The Low Countries, especially the ports of Rotterdam and Antwerp, are the doors to and from this rich empire.

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and the various regions of the commonwealth have developed, they have been tied together and made interdependent by a wide-spreading network of railways, highways, and air lines. Government of the area no longer presents a problem.

Now Texans, as they survey their sizable slice of the Union, bathed by the Gulf of Mexico on the east, stretching more than halfway to the Pacific on the west, almost touching the Tropics on the south, and reaching in the north almost to the center of the United States, show little inclination to break their great state into fragments.

The treaty provisions also gave Texas a market for some "surplus" territory. The United States paid $10,000,000 for Texas claims to more than 120,000 square miles of land in a strip lying west and north of the present state boundaries, and making up parts of the existing states of New Mexico, Oklahoma, Kansas, Colorado, and Wyoming.

On the other side of the ledger, Texas came into the Union bearing gifts. What was left of its little navy—three small war vessels—was turned over to Uncle Sam and became a part of the U. S. Navy.

One index to the development of Texas during the past century is the growth of its towns. San Antonio tops the list for age, having been started with the building of the first mission in 1718; but it had only a few thousand inhabitants in 1845. Now its metropolitan area has a population close to 400,000. Some of the important Texas cities of today were little more than villages when the state entered the Union. That is true of Houston, now ranking municipality of Texas, with more than half a million people in its metropolitan area; Austin, which has a population of 110,000; Beaumont, which now has 77,000 inhabitants; and Galveston, with 72,000.

Crowded cities of today which were not even born a hundred years ago are Dallas, whose metropolitan area holds more than 400,000 people; Fort Worth, with a population of 210,000; El Paso, with 107,000; Corpus Christi, with 85,000; Waco, with 65,000.

Note: Texas is shown on the Society's Map of the United States.

For additional information, see "The Yield of Texas," in the *National Geographic Magazine* for February, 1945; "The Texas Delta of an American Nile," January, 1939*; and "So Big Texas," June, 1928.

Bulletin No. 2, January 21, 1946.

Clifton Adams

OVER A CENTURY AGO THE FRENCH CHARGE D'AFFAIRES TO THE REPUBLIC OF TEXAS LIVED HERE

Once one of the most pretentious buildings in Texas, and now the oldest in Austin, this modest cottage was built by M. de Saligny, France's diplomatic representative to Texas when it was a lusty young independent nation. Doors, locks, and hinges came from France. Saligny left Austin in a huff after the "Pig Episode," one of the strangest affairs in diplomatic history. A pig belonging to one of the neighbors broke into the Frenchman's barn and ate his corn; Saligny's servant killed the pig; then the owner of the pig gave the servant a lesson in Texas fisticuffs.

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Mexico's Unearthed Jade Still Hides Secret of Its Source

ARCHEOLOGICAL expeditions, in unearthing art objects of fine jade in southern Mexico, have failed to solve a mystery which has hung for years over the presence of this highly prized stone in the Western Hemisphere. Deposits in Wyoming, California, and Alaska produce a type of jade called nephrite, a material of relatively low value. Ninety per cent of the jade objects found in prehistoric Mexican tombs (illustration, next page), however, is of jadeite, the aristocratic member of the jade family.

The mystery lies in the fact that no mines of jadeite have ever been discovered in the Western Hemisphere. This has prompted the speculation that the jade objects found in Mexico were made from stone brought over a long-vanished trade route from Asia, which has been for ages a source of the finest jade.

Sensitive Toes Fish for Jade in Streams

During the past seven years, the National Geographic Society and the Smithsonian Institution, in a series of archeological expeditions in the Tehuantepec Isthmus region of Mexico, have discovered cache after cache of artistically carved statuettes, rings, pendants, and other jade artifacts. Some of the smaller objects are fashioned from the highest quality of jadeite—equal to the famous Imperial, or gem, jade of China and Burma.

In the Eastern Hemisphere famous jade quarries were located in the Qara Qash valley, south of Khotan in southern Sinkiang. There the chief supply for the Chinese emperors was obtained. The finest present source is Burma. Other deposits are found in India, the U.S.S.R.'s Turkestan areas, and New Zealand. Men in Turkestan are reported to "fish" for jade which has broken from larger boulders and fallen into shallow streams. Wading into the streams, the men pick up the stones with their toes, which are sensitive enough to distinguish jade from other stones. Large pieces of jade which survive long journeys downstream are highly prized as hardy, flawless stones.

First used by ancient man for making axheads, jade has a history spanning many centuries. China's system of weights and measures was first established by using jade tubes of various weights, and throughout the ages some Orientals have valued jade above all other gems and precious stones.

Certain Chinese writers believe it to be a combination of five fundamental virtues—charity, modesty, courage, justice, wisdom. Confucius explained it slightly differently: "In the eyes of wise men, its polish and brilliancy represent virtue and humanity; the defects under the surface, yet apparent, represent sincerity; the impossibility for the bad shades to hide the beautiful, or the beautiful the bad, represents loyalty."

Canton's Market Sold Entire Boulders of Jade

Jade may be composed of either jadeite or nephrite. Jadeite is superior, the finest being white and translucent. Jadeite, whose finest form is known as gem jade, is composed chiefly of alumina and soda. Nephrite, composed of lime and magnesia, is less valuable, but in its best quality is also white. The luster of both is dull and waxlike with few reflecting surfaces. The rarer jadeite can be distinguished by its specific gravity, which is heavier than that of nephrite. Both materials are very hard and feel oily to the touch.

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The term "Ruhr" is used in two ways. In the first sense it means the area of the Ruhr River valley with its 25-mile chain of cities built squarely over the fabulously rich coal deposits. This is really the heart of the Ruhr, where blast furnaces and heavy industries are situated.

The Ruhr as generally thought of, however, includes the entire industrial region—the valley of the Wupper River, the Rhine city of Düsseldorf, and even the outer-rim city of Cologne (map, below). This larger Ruhr forms a rough triangle with corners at Cologne, Wesel, and Hamm—an area smaller than Delaware.

Ruhr Coal Could Last Twenty Centuries

The prewar Ruhr was an area of fantastic statistics. The pig-iron output of the region nearly equalled that of the entire British Commonwealth of Nations; its steel production was double that of France. Five per cent of its known coal deposits would furnish enough coke to process all the ore in France's rich Lorraine iron field. It was estimated that unplumbed beds of coal were sufficient to last for 2,000 years at the prewar rate of consumption.

The most amazing characteristic of the Ruhr of the late thirities was its large number of enormous cities. Fifteen cities had more than 100,000 inhabitants. The aggregate population of the Ruhr cities with over 100,000 people reached nearly 5,000,000. Four cities—Cologne, Essen, Düsseldorf, and Dortmund—had more than a half-million inhabitants each. Seven cities in the Ruhr valley—Duisburg, Oberhausen, Mülheim, Essen, Gelsenkirchen, Bochum, and Dortmund—formed actually one continuous urban development of two and one-half million persons. Duisburg, where the Ruhr River joins the Rhine, ranked in shipping tonnage with Europe's largest seaports.

The problems that might arise from the plan to transform the Ruhr from an industrial to a farming community would be somewhat like those resulting in the United States if Delaware contained within its boundaries the following cities (chosen to compare with Ruhr cities of the same approximate size): Boston, Pittsburgh, Milwaukee, Buffalo, Newark, Kansas City, Louisville, Atlanta, Richmond, Nashville, Scranton, Des Moines, Paterson, Chattanooga, and Peoria. When farming was the Ruhr's chief occupation, Cologne was a city of fewer than 80,000 inhabitants and Essen a mere crossroads village.

To capture the Ruhr, Allied armies crossed the Rhine above and below the prized area, cut it off from the rest of the Reich, then closed in.

THE INDUSTRIAL RUHR FED THE GERMAN WAR MACHINE

Among prewar heavy-industry cities were Essen, Bochum and Dortmund. Mixed industrial output poured from Cologne, Düsseldorf, Wuppertal, and nearly every other city on the map. Leverkusen had chemical works, Solingen turned out fine steel products, and Krefeld was famed for textiles. At Hamm were situated the great railroad marshalling yards. The richest coal belt stretched from Oberhausen to Dortmund.

Note: The cities and rivers of the Ruhr may be located on the Society's Map of Germany and Its Approaches, which was issued as a supplement to the *National Geographic Magazine* for July, 1944.

Bulletin No. 3, January 21, 1946.

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Published Weekly by

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General Headquarters, Washington 6, D. C.

Atomic Bomb and Radar Top 1945's Amazing Engineering Feats

A SINGLE bomb released over Hiroshima on August 6 supplied the dramatic highlight in the record of world achievements in engineering and construction for 1945.

Wiping out the Japanese city and hastening Japan's surrender eight days later, the bomb tore the veil of secrecy from Uncle Sam's now-famous Manhattan Project. As science's first-applied use of the vast power known to lie within the atom, it stamped the Manhattan Project as the engineering coup of the year.

Electronics Industry Became One of Nation's Largest

The project thus revealed proved to be titanic—a two-billion-dollar gamble against odds, co-ordinating scientific genius, precision manufacturing, and infinite detail all on a scale to stagger the imagination. Employing more than 160,000 workers, it created new industrial cities at Oak Ridge, Tennessee, and Pasco, Washington. In two years Oak Ridge blossomed from the soil into a city with houses and apartments for 30,000 people, barracks for 30,000, trailer camps for 10,000, stores, schools, paved streets, and adequate water, light, heat, and other utilities.

Perhaps less spectacular was radar. It is classed as a 1945 achievement because it entered the "now it can be told" category at the very hour of Japanese surrender, when the official story of its development was released.

Radar equipment, designed in private, commercial, and government laboratories in Britain and America, contributed so materially to United Nations superiority on land, sea, and air, that its manufacture turned the electronics industry into one of America's largest. It became comparable in size to the prewar automobile industry. Barely existent before 1940, the radar industry had delivered nearly three billion dollars worth of equipment to the Army and Navy by the Japanese surrender date.

Many other war-inspired engineering achievements were executed or revealed in 1945. A major pipe-laying drama was Operation Pluto (Pipe Line Under The Ocean), revealed soon after V-E Day. Towing giant floating drums wound with three-inch flexible steel pipe behind tugboats, British construction men laid 20 lines across the English Channel in the months following the Normandy invasion. Through these lines, 750 miles in combined length, gasoline and oil to a maximum of a million gallons a day flowed from Britain to Allied fronts. In nine months 120 million gallons were pumped through Pluto lines.

Floating "Lily-pad" Airstrips on the Ocean Tried

Pipelines laid from invasion-coast tanker stations across France to U. S. Army forward areas carried a peak flood of 3,800,000 gallons of fuel a day. They were laid by U. S. Army Engineers, who completed a similar engineering feat in the China-Burma-India Theater during 1945. There they put through the 1,800-mile pipeline (illustration, next page), called the world's longest, from Calcutta's tanker docks eastward over the Himalayan hump to Kunming, China.

The Navy told the story of Advanced Base Sectional Docks—floating dry-dock sections of steel, towed to forward areas and welded together in sheltered waters. Their walls contain shops, foundries, and living quarters. The method made possible "on the spot" repairs even to the largest ships. British and Americans also built experimental "lily-pad" airstrips on the ocean. They used thousands

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Jade, often discolored by chemical elements in the soil, becomes green, yellow, amber, blue, or black. Stones with rust-colored veins running through them are called tomb jade, as they are generally found in tombs and have been discolored by organic decomposition.

In prewar Canton an annual market was held where entire boulders of jade were sold. Buyers had to be very shrewd for there was no way of judging value until the boulder had been split open and workmen had started to carve it. When these boulders were bought for the emperor, he selected an artist-carver to finish them.

The value of jade objects has always depended on the excellence of the artist's work more than on the quality of the stone. Stones are judged according to color, sonorousness (sound when struck), and flawlessness. Because of jade's extreme hardness, the artist must sometimes spend ten years or more in carving one article.

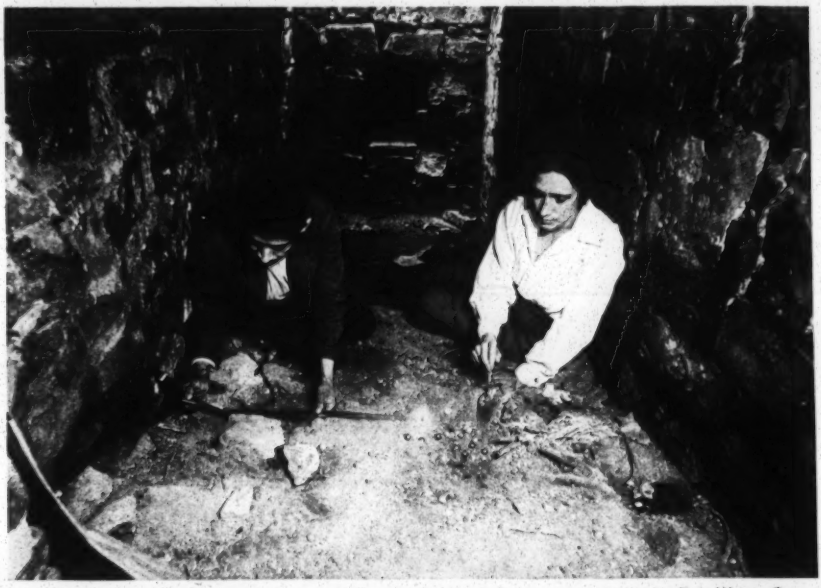
Among minerals sometimes mistaken for, or sold as, jade are sausserite, chlormelanite, pectolite, and serpentine. There are large quantities of serpentine in Rhode Island and Vermont. The finest of all collections of jade is not in Asia, where the stone is so highly prized, but in the Metropolitan Museum of Art in New York City.

Jade was once supposed to be a cure for pains in the side. The word is derived from the Spanish *piedra de ijada* (stone of the side).

Note: Areas where archeologists have discovered jade in Mexico may be located on the Society's Map of Mexico, Central America, and the West Indies.

For additional information see "La Venta's Green Stone Tigers," in the *National Geographic Magazine*, September, 1943*; "Finding Jewels of Jade in a Mexican Swamp," November, 1942; and "Expedition Unearths Buried Masterpieces of Carved Jade," September, 1941.

Bulletin No. 4, January 21, 1946.



Dr. Alfonso Caso

SCIENTISTS MEASURE THE POSITIONS OF THEIR JADE DISCOVERIES

Archeologists exploring strange grass-grown mounds in Oaxaca, in southern Mexico, discovered precious jade beads among the dust of moldering bones in a prehistoric tomb. In unearthing their find, the scientists take the greatest care to record its exact position and condition before removing it from its ancient stone-walled hideaway. Jade found in this tomb varied in color from the white of the purest variety to dark blackish green. Chromium, which gives green jade its vivid color, is also responsible for the dazzling hue of emeralds.

of big, buoyant cans. Their success gave impetus to the plan for floating airdromes as postwar way stations in mid-ocean.

Peace and reconstruction work made up a large proportion of the past year's engineering projects. The Soviet Union, repairing war damage in the west, had rebuilt half a million peasant homes on their old foundations, had restored 30,000 miles of wrecked railway and 2,400 bridges. In Moscow (Moskva), work was resumed on the ambitious Palace of the Soviets, whose scheduled 1,364 feet of height will make it the tallest building in the world.

In October, President Truman dedicated the Kentucky Dam near Paducah. Its 184-mile reservoir is the longest of more than 20 created by the Tennessee Valley Authority. In the Missouri River valley (illustration, inside cover), work was in progress on some of the 105 dams proposed in the network planned by the U. S. Bureau of Reclamation.

Bolivia completed its Angostura Dam, near Cochabamba, first of five irrigation units which will add 160,000 acres to the republic's arable land. In Puebla, Mexicans completed the first third of a big job of bringing irrigation water to 250 square miles of barren land. Peru moved forward in harnessing its Santa River with a dam to create electric power for its growing Chimbote industrial center and irrigation for rainless slopes of its coast.

Cities everywhere pushed pet projects. New York opened the north tube of its midtown Lincoln Tunnel under the Hudson to Weehawken (south tube opened in 1937). At Niagara Falls, a new scenic tunnel under the Horseshoe Falls replaced a 56-year-old tunnel made unsafe by the receding crest. Monrovia, Liberia, in Africa, was building a complete new port. Mexico City, eyeing tourist trade, was building the ultimate in sports centers with separate arenas for bullfighting, football, boxing, jai alai, and other sport spectacles.

Construction of the Inter-American Highway's 3,356 miles from the United States-Mexico border to the Canal Zone progressed. Brazil and Argentina opened their mile-long international bridge across the Uruguay River. The radio industry reached its 25th birthday with staticless frequency modulation a reality for listeners in many centers.

U. S. Army Signal Corps, Official

ENGINEERS LAID A PIPELINE THROUGH BURMA

Oil for the planes in China flowed from Calcutta, India, to Kunming after the last pipe section was placed in 1945. The two GI's are pushing through the jungle grass in a stretch of wilderness south of Warazup, Burma.

Note: See also "Oil for Victory Piped under the Sea" and "Science Works for Mankind," in the *National Geographic Magazine* for December, 1945; "Taming the Outlaw Missouri River," November, 1945; and "Normandy's Made-in-England Harbors," May, 1945.